REMARKS

Reconsideration and withdrawal of the rejections of the claims, in view of the amendments and remarks presented herein, is respectfully requested.

Claims 6-8 and 18-19 are amended. Claims 1, 4, 9-10 and 16-17 are canceled. The pending claims are claims 2-3, 5-8, 11-15 and 18-26. At page 10 of the Office Action, the Examiner has indicated that claims 20 and 21 are allowed.

The 35 U.S.C. §112, first paragraph, rejection of the claims

The Examiner rejected claims 8, 11-15 and 17-19 under 35 U.S.C. § 112, first paragraph, alleging that specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with the claims. In particular, the Examiner asserts that the present specification does not reasonably provide enablement for treatment of "any" tumor. Claim 17 has been cancelled, rendering this rejection to claim 17 moot. Given the Examiner's concession at page 6 of the Office Action that the present specification is enabling for *in vivo* antisense-mediated inhibition of human superoxide dismutase in the treatment of tumors, Applicants submit that the amendment to claim 8 overcomes this rejection to claim 8 and to claims 11-15 and 18-19, which are dependent upon claim 8. Withdrawal of this 35 U.S.C. § 112, first paragraph, rejection of claims 8, 11-15 and 17-19 is therefore respectfully requested.

The Examiner further rejected claims 2-3, 5-8, 11-15, 17-19 and 22-26 under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. In particular, the Examiner asserts that the claims are directed towards "any" portion of "any" nucleic acid so long as the oligonucleotide binds to a start codon of one of the five recited human antioxidant enzymes. As this rejection may be maintained with respect to the pending claims, it is respectfully traversed.

As amended, claims 6 and 7 (upon which 2-3, 5, 22-26 are dependent) are directed to an oligonucleotide comprising an antisense nucleic acid sequence that is about 18 to 26 nucleotides in length, is 90% complementary to and is capable of specifically binding to a contiguous portion of a nucleic acid that includes a start codon for a human antioxidant enzyme wherein the

antioxidant enzyme is manganese superoxide dismutase, copper and zinc superoxide dismutase, catalase, phospholipid glutathione peroxidase, or cytosolic glutathione peroxidase (claim 6), and to an oligonucleotide comprising such an antisense nucleic acid sequence that is 100% complementary to and capable of specifically binding to a contiguous portion of a nucleic acid that includes a start codon for a human antioxidant enzyme wherein the antioxidant enzyme is manganese superoxide dismutase, copper and zinc superoxide dismutase, catalase, phospholipid glutathione peroxidase, or cytosolic glutathione peroxidase (claim 7). Claim 8, as amended, is directed to a method of treating a tumor in a mammal comprising reducing antioxidant enzyme levels in a cell by administering a therapeutic agent comprising an antisense nucleic acid sequence that is about 18 to 26 nucleotides in length and is capable of specifically binding to a contiguous portion of a nucleic acid that includes a start codon for a human manganese superoxide dismutase.

The Examiner is respectfully requested to consider that, as amended, Applicants' pending claims are not directed to antisense oligonucleotides that target "any" portion of "any" nucleic acid, but to particular antisense oligonucleotides that are capable of specifically binding to contiguous portions of a nucleic acids that include the start codon for five recited human antioxidant enzymes, *viz.*, manganese super oxide dismutase (MnSOD), copper and zinc superoxide dismutase, catalase (CAT), phospholipid glutathione peroxidase (GPx), and cytosolic GPx. Page 3, line 27 through page 4, line 27 of the application discloses examples of such antisense oligonucleotides, in particular, antisense oligonucleotides that specifically bind to a contiguous portion of nucleic acid that includes a start codon for MnSOD, (SEQ ID Nos: 1-3), antisense oligonucleotides that specifically bind to a contiguous portion of nucleic acid that includes a start codon for CAT (SEQ ID Nos: 4-5), and antisense oligonucleotides that specifically bind to a contiguous portion of nucleic acid that includes a start codon for phospholipid GPx (SEQ ID Nos: 6-7). Moreover, at the time the present application was filed the art worker knew of nucleic acid sequences for human copper and zinc superoxide dismutase and human cytosolic GPx, as evidenced by GenBank Accession Numbers X02317, M21304 and AF199441 (of record). Thus, adequate description of the recited oligonucleotides was either specifically taught by the specification and/or was known by those having skill in the art at the time the application was filed.

Moreover, the Examiner is urged to consider that the claims are not drawn to a broad genus of antisense oligonucleotides that target "all" human antioxidant enzymes, but rather to oligonucleotides comprising antisense nucleic acid sequences that are about 18 to 26 nucleotides in length, either 90% or 100% complementary to, and capable of specifically binding to nucleic acid that includes a start codon for five human antioxidant enzymes, the sequence of which is either taught by the present specification or known to the art.

Thus, Applicants have provided adequate written description for the pending claims, and withdrawal of this rejection under 35 U.S.C. § 112, first paragraph (written description) is therefore respectfully requested.

The 35 U.S.C. § 102 Rejection of the Claims

The Examiner rejected claims 2-3, 5-7 and 22-26 under 35 U.S.C. § 102(b) as being anticipated by Gonzales-Sulueta *et al.*, The J. Neuroscience, 18: 2040-2055 (1998). As this rejection may be maintained with respect to the pending claims, it is respectfully traversed.

The Examiner asserts that Gonzalez-Zulueta *et al.* teach a phosphorothiolated antisense compound that is 19 nucleotides long and that targets a human antioxidant enzyme start codon, *i.e.*, AUG/ATG. The Examiner further asserts that because each of the recited human antioxidant enzymes (copper and zinc superoxide dismutase, catalase, phospholipid glutathione peroxidase, and cytosolic glutathione peroxidase) contain a AUG/ATG start codon, Gonzalez-Zulueta *et al.* anticipates the pending claims.

However, the Examiner concedes that the target of the Gonzalez-Zulueta *et al.* antisense oligonucleotide is a *rat* manganese superoxide dismutase. As discussed above, as amended the pending claims are directed to an oligonucleotide comprising an antisense nucleic acid sequence that is about 18 to 26 nucleotides in length, is 90% complementary to or 100% complementary to, and is capable of specifically binding to a contiguous portion of a nucleic acid that includes a start codon for a human antioxidant enzyme wherein the antioxidant enzyme is manganese superoxide dismutase, copper and zinc superoxide dismutase, catalase, phospholipid glutathione peroxidase, or cytosolic glutathione peroxidase. There is nothing in Gonzalez-Zulueta *et al.* that discloses the recited oligonucleotide. Thus, the claims are not anticipated by the cited document. Withdrawal of this rejection under 35 U.S.C. § 102(b) is therefore respectfully requested.

Conclusion

Applicants respectfully submit that the claims are in condition for allowance, and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicants' attorney at (612) 371-2106 to facilitate prosecution of this application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

Respectfully submitted,

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Date 22 March 2005

By _____
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CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: MS Amendment, Commissioner of Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on this 22 day of March, 2005.

CANDIS BUENDING
Name

_____
Signature